MULTIMEDIA UNIVERSITY

STUDENT IDENTIFICATION NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2015/2016

BKC2024 – DATABASE MANAGEMENT SYSTEMS

(All Sections / Groups)

12 OCTOBER 2015
02:30pm-04:30pm
(2 Hours)

INSTRUCTIONS TO STUDENT

1. This Question paper consists of 3 pages with 5 Questions only.
2. Attempt **FOUR** out of **FIVE** questions. All questions carry equal marks and the distribution of the marks for each question is given.
3. Please write all your answers in the Answer Booklet provided.

QUESTION 1

a) Identify and describe **SIX (6)** functions of database management systems (DBMS). (12 marks)

b) What is a transaction? Identify and discuss **FIVE (5)** transaction properties. (13 marks)

(Total: 25 marks)

QUESTION 2

a) Describe **FOUR (4)** types of database models using appropriate diagrams. (12 marks)

b) What is referential integrity? Discuss the referential integrity rules in the context of insertion and deletion using a relational database diagram to illustrate your answer. (13 marks)

(Total: 25 marks)

QUESTION 3

a) Consider the following travel package:

UNIVERSAL TRAVEL AGENCY
RESERVATION PARTICULARS

RESERVATION ID.: RVT-150725 **RESERVATION DATE:** 25 JUL 2015

CLIENT ID: 7816
CLIENT NAME: CELINE ONG
CLIENT CONTACT: 014-666 2468
CLIENT ADDRESS: MT 8, BUKIT BARU, 75200 MELAKA.

TRAVEL PACKAGE:

NO	PACKAGE ID	PACKAGE DESCRIPTION	PACKAGE PRICE (RM)	TRAVEL DATE	NO. OF TRAVELLERS
1	BAN1021	BALI	800	03-OCT-2015	3
2	HON1123	AUSTRALIA	4000	14-FEB-2016	4

Derive the above relations in unnormalized form (UNF), and normalize it from UNF to third normal form (3NF). Show all steps taken to normalize the relations and clearly state any assumptions made (if necessary). (11 marks)

Continued...

b) Based on the set of 3NF relations derived in (a), draw a **complete ER diagram.** Make sure that all the entities, attributes, relationships and connectivities/cardinalities are included in your ER diagram. (8 Marks)

c) There are twelve rules that defines a data warehouse. List **SIX (6)** of these rules. (6 marks)

(Total: 25 marks)

QUESTION 4

a) Discuss the factors that are affecting purchasing decisions of database management systems (DBMS) software. (10 marks)

b) The SuperFly Company publishes a weekly flight log report, which tracks each aircraft and the number of hours that were flown by an individual pilot in each aircraft.

The following business rules apply to this report:

- Pilot may be assigned to fly different aircraft each day by the flight-scheduling manager.
- Each aircraft has a single crew chief permanently assigned to perform maintenance on the aircraft, although a crew chief may crew more than one aircraft.
- An aircraft number identifies each aircraft.
- There are several aircraft in the fleet.
- An aircraft number is unique, independent of aircraft type.
- Pilots are identified by their flying-license-number and crew chief by employee-id.
- Additional information: All aircrafts have seating-capacity data.

Construct a complete ER diagram for the above scenario. (15 marks)

(Total: 25 marks)

QUESTION 5

a) Identify **FIVE (5)** managerial skills for a database administrator (DBA). (5 marks)

b) Based on the following tables, write appropriate SQL statements to carry out the following tasks:

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STUDENT

STUDENT_ID	STUDENT_NAME	MAJOR_ID	CGPA
2001	ELAINE CHOW HUI LIN	MK1010	3.55
2002	MUSA SELAMAT	MM3010	3.65
2003	NATHAN SUBRAMANIAN	MK1010	2.91

MAJOR

MAJOR_ID	MAJOR_NAME
MK1010	KNOWLEDGE MANAGEMENT
MB2010	BANKING & FINANCE
MM3010	MARKETING MANAGEMENT

i) Create the STUDENT table, using the following table definition: (3 marks)

Field Name	Data Type	Size	Remarks
STUDENT_ID	Number	-	Primary key
STUDENT_NAME	Short Text	40	Required
MAJOR_ID	Short Text	10	-
CGPA	Number	-	-

ii) Add the following record into the MAJOR table. (3 marks)

MAJOR_ID	MAJOR_NAME
MI4010	INTERNATIONAL BUSINESS

iii) Change MUSA SELAMAT's major as he has switched from MARKETING MANAGEMENT major to INTERNATIONAL BUSINESS. (3 marks)

iv) Display the number of students for each major. (3 marks)

v) Display the STUDENT_NAME, MAJOR_NAME and CGPA where the CGPA is 3 and above. (4 marks)

vi) List the student name and CGPA for all students whose CGPA are below 3. Sort the result so that those with the highest CGPA are listed first. (4 marks)

(Total: 25 marks)

End of Paper